

Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

1. (Currently Amended) A ~~current drive circuit which supplies a signal current to a node of a driven circuit through a signal line,~~ semiconductor device comprising:

a driven circuit comprising a first transistor;

a signal line electrically connected to the first transistor through a node;

a first precharge circuit electrically connected to the signal line;

wherein;

~~a precharge means for supplying a precharge voltage is supplied to the node through the signal line is provided prior to supplying a signal current to the driven circuit; and
the precharge means has a supply means for supplying the precharge voltage to the node and the signal line prior to supplying the signal current.~~

2. (Currently Amended) The ~~current drive circuit~~ semiconductor device according to claim 1,

wherein the first precharge means circuit ~~comprises a setting means for setting~~ sets the precharge voltage to a potential equal to ~~or according to~~ a potential of the node in a stationary state when the signal current is supplied to the driven circuit.

3. (Currently Amended) The ~~current drive circuit~~ semiconductor device according to claim 1,

wherein ~~the precharge means comprises a plural setting means for setting one of~~ a plurality of voltages is selected as the precharge ~~voltages~~ voltage; and
~~a selection supply means for selectively supplying the precharge voltage to the node and the signal line according to a magnitude of the signal current.~~

4-5. (Cancelled)

6. (Currently Amended) The ~~current drive circuit~~ semiconductor device according to claim [[4]] 1,

wherein

~~the driven circuit comprises a first driving element and the first precharge circuit comprises a second driving element transistor; and~~

~~the first and the second driving elements are the same in size or in size according to it.~~

7. (Currently Amended) The ~~current drive circuit~~ semiconductor device according to claim [[4]] 1, further comprising:

~~a means for supplying the precharge voltage to the node and the signal line through an impedance transformation amplifier.~~

8. (Currently Amended) The ~~current drive circuit~~ semiconductor device according to claim [[4]] 3, further comprising [[:]]

~~a plural second setting means precharge circuit comprising a third transistor for setting a plurality of the precharge voltages; and~~

~~a selection supply means for selectively supplying the precharge voltage to the node and the signal line according to a magnitude of the signal current.~~

9. (Currently Amended) The ~~current drive circuit~~ semiconductor device according to claim 1, comprising:

~~a means for setting wherein~~ a precharge period T_b for supplying the precharge voltage to the node and the signal line is set so as to satisfy

$$T_b = R_L \times C_L$$

based on a wiring resistance R_L and a parasitic capacitance C_L of the signal line.

10. (Currently Amended) The current drive circuit according to claim 9, ~~comprising:~~

~~a means for wherein setting as~~

$$T_a = T_b$$

in ~~[[the]]~~ a case where a supply period T_a of the signal current to the driven circuit satisfies

$$T_a < T_b.$$

11. (Currently Amended) A ~~display semiconductor~~ device ~~comprising:~~ according to claim 1, wherein:

~~an image circuit to which an image data is provided as a current through a current line;~~
~~and~~

the driven circuit is included in a pixel circuit;

~~a current drive circuit for supplying the image data to the current line as a signal current;~~
~~wherein the current drive circuit comprising:~~

~~a source driver current source for supplying a signal current according to the image data from a node to the current line;~~

~~[[a]] the precharge circuit for supplying a precharge voltage to the node and the current line is included in a source driver circuit; and~~

~~a supply means for supplying the precharge voltage to the node and the current line prior to supplying the signal current~~

a power supply line is connected to the pixel circuit.

12-15. (Cancelled)

16. (Currently Amended) ~~[[A]] The display semiconductor device comprising:~~ according to claim 6, wherein

a pixel circuit comprising a signal line for transmitting image data as a signal current and a first driving element for supplying a driving current in proportion to the signal current from a power supply line; and

a source driver circuit comprising an image signal input current source for supplying the signal current to the signal line;

wherein a precharge circuit for precharging the signal line prior to supplying the signal current to the signal line is integrated in the source driver circuit;

the precharge circuit is selectively connected between the image signal input current source and the power supply line and comprises a second driving element for outputting a precharge voltage according to the signal current; and

the first and the second driving elements ~~transistors~~ are the same in size or in size according to it.

17. (Cancelled)

18. (Currently Amended) A ~~current drive circuit~~ semiconductor device comprising:

a driven circuit comprising a first transistor;

a precharge circuit;

a ~~means~~ first switch for controlling [[a]] an electrical connection between [[a]] the driven circuit and [[a]] the precharge circuit; and

a ~~means~~ second switch for controlling [[a]] an electrical connection between [[a]] the driven circuit and [[a]] the current source circuit.

19. (Currently Amended) [[A]] The ~~current drive circuit~~ semiconductor device comprising: according to claim 18, further comprising

~~a driven circuit~~;

~~a precharge circuit~~;

a current source circuit for inputting a signal current to the driven circuit;

~~a means for controlling a connection between the driven circuit and the precharge circuit;~~
~~a means for controlling a connection between the driven circuit and the current source~~
~~circuit; and~~
~~a means for outputting a voltage by amplifying a signal outputted from the precharge~~
~~circuit.~~

20. (Currently Amended) A ~~current drive circuit~~ semiconductor device comprising:
a driven circuit comprising a first transistor;
~~a precharge circuit~~ plural precharge circuits;
[[a]] plural current source ~~circuit~~ circuits for inputting a signal current to the driven
circuit;
a ~~means~~ first switch for controlling [[a]] an electrical connection between the driven
circuit and the plural precharge ~~circuit~~ circuits; and
a ~~means~~ second switch for controlling [[a]] an electrical connection between the driven
circuit and the plural current source ~~circuit~~ circuits; ~~wherein~~
~~the precharge circuit outputs a precharge voltage selected from a plurality of voltage~~
~~values.~~

21. (Currently Amended) [[A]] The ~~current drive circuit~~ semiconductor device
comprising according to claim 20 ~~[[:]]~~ , further comprising
a driven circuit;
a precharge circuit;
a current source circuit for inputting a signal current to the driven circuit;
a means for controlling a connection between the driven circuit and the precharge circuit;
a means for controlling a connection between the driven circuit and the current source
circuit; and a means plural amplifier circuits for amplifying signal currents outputted from the
plural precharge ~~circuit~~ circuits;

~~wherein the precharge circuit outputs a precharge voltage selected from a plurality of voltage values.~~

22. (Currently Amended) The ~~current drive circuit~~ semiconductor device according to claim 18,

~~wherein the driven circuit comprises a first transistor and the precharge circuit comprises a second transistor.~~

23-25. (Cancelled)

26. (Currently Amended) The ~~current drive circuit~~ semiconductor device according to claim [[18]] 19,

~~wherein the driven circuit is disposed in a pixel of a display device; and
the precharge circuit and the current source circuit are disposed in a source driver circuit of the display device.~~

27. (Currently Amended) The ~~current drive circuit~~ semiconductor device according to claim [[18]] 19,

~~wherein;
the driven circuit is disposed in a digital voltage/analog current conversion circuit; and
the precharge circuit and the current source circuit are disposed in a reference current source circuit.~~

28. (Currently Amended) The ~~current drive circuit~~ semiconductor device according to claim [[18]] 22,

~~wherein the precharge circuit comprises a transistor; and
wherein a gate and a drain of the second transistor are connected to each other.~~

29-58. (Cancelled)

59. (New) The semiconductor device according to claim 18, further comprising an amplifier circuit for amplifying a signal current outputted from the precharge circuit.

60. (New) The semiconductor device according to claim 20, wherein at least one of the plural precharge circuits comprises a second transistor.

61. (New) The semiconductor device according to claim 20,
wherein:
the driven circuit is disposed in a pixel; and
the plural precharge circuits and the plural current source circuits are disposed in a source driver circuit.

62. (New) The semiconductor device according claim 20,
wherein the driven circuit is disposed in a digital voltage/analog current conversion circuit; and
the plural precharge circuits and the plural current source circuit are disposed in a reference current source circuit.

63. (New) The semiconductor device according claim 60,
wherein a gate and a drain of the second transistor are connected to each other.

64. (New) The semiconductor device according to claim 7, wherein the impedance transformation amplifier is a source follower circuit.

65. (New) The semiconductor device according to claim 21, wherein at least one of the plural amplifier circuits is a source follower circuit.

66. (New) The semiconductor device according to claim 59, wherein the amplifier circuit is a source follower circuit.

67. (New) The semiconductor device according to claim 22, wherein the second transistor is connected to the first switch through a wiring.

68. (New) The semiconductor device according to claim 60, wherein the second transistor is connected to the first switch through a wiring.

69. (New) The semiconductor device according to claim 22, further comprising a wiring connected to the second transistor and the first switch.

70. (New) The semiconductor device according to claim 60, further comprising a wiring connected to the second transistor and the first switch.